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ABSTRACT

The study investigated the effects of a cooperative intervention designed to allow 40 academically handicapped (learning disabled or mildly retarded) and normal progress students (in third, fourth, and sixth grades) to work cooperatively on academic materials in improving social relationships between these groups of students. In the cooperative treatment, students studied mathematics in heterogeneous teams that were rewarded as a group for improvements in the performance of the individual members. This treatment was compared to a control treatment in which students worked individually on their mathematics work and were rewarded as individuals for improvement in performance. Results indicated that the cooperative techniques improved social acceptance, in that rejection of academically handicapped students was decreased, but friendships were not increased. Gains in academic achievement and self esteem were found for the combined sample of students in the cooperative learning treatment. (Author/DB)

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Effects of Cooperative Learning on the Social Acceptance of Mainstreamed Academically Handicapped Students

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Abstract

Studies examining relationships between children with learning problems, here called academically handicapped students, and their peers have consistently indicated that learning disabled and educable mentally retarded students have fewer friends and are more frequently rejected by their classmates than are other students. In previous research, programs oriented towards involving academically handicapped students in cooperative interaction with normal-progress students have been shown to facilitate positive relationships between peers. However, past interventions have typically employed short-term non-academic cooperative activities, and have found that improvements in social relationships dissipate following the end of the intervention. In this study, a cooperative intervention designed to allow academically handicapped and normal-progress students to work cooperatively on academic materials was examined to determine its effectiveness in improving social relationships between these groups of students. In the cooperative treatment, students studied mathematics in heterogeneous teams that were rewarded as a group for improvements in the performance of the individual members. This treatment was compared to a control treatment in which students worked individually on their mathematics work and were rewarded as individuals for improvements in performance.

The subjects in the study were 183 third, fourth and sixth graders in an urban elementary school. Forty of these students were identified by the special education placement team in the school as needing special education because they were at least two years below grade level academically. These students were assigned to regular classes. Each teacher taught one experimental and one control class for seven weeks. Classes were randomly assigned to treatments.

The results indicated that cooperative techniques improved social acceptance, in that rejection of academically handicapped students was decreased, but friendships were not increased. Academic achievement gains and increases in self-esteem were found for the combined sample of students in the cooperative learning treatment.

In the 1940's and 1950's, educators concerned with providing the best possible education for children with serious learning problems advocated the development of special programs for these children which removed them from regular classrooms. The impetus behind this effort came from a concern that the special needs of these children were not being adequately met, and from the frequent observation that they were rejected by their classmates, which was felt to be harmful to their social development and self-concept (Johnson, 1950; Shattuck, 1956). By the 1960's, special class placement was the norm for educable mentally retarded children, and subsequently special classes were developed for learning disabled students and low achieving emotionally disturbed students. In this paper, these students are collectively referred to as academically handicapped.

However, while the issue cannot be considered to be closed, research on segregated placement of academically handicapped students does not support the usefulness of this strategy for either academic (Budoff and Gottlieb, 1976; Calhoun and Elliott, 1977; Goldstein, Moss, and Jordan, 1965; Walker, 1974) or social (Calhoun and Elliott, 1977; Budoff and Gottlieb, 1976; Gottlieb, Gampel, and Budoff, 1975) outcomes. As a result of this research, and of changing attitudes toward special education in society at large, academically handicapped students began to be re-integrated in regular classes. The passage of PL94-142 accelerated a trend toward placing mildly academically handicapped students in regular classes whenever possible. This has led in general to improvements in social and achievement outcomes for the mainstreamed students (see Meyers, MacMillan and Yoshida, 1980 for a review).

But serious problems remain. Recent studies of educable mentally retarded and learning disabled students in regular classes consistently show that these students are disliked or rejected by their normal-progress classmates (Bruininks, 1978; Bruininks, Rynders, and Gross, 1974; Bryan, 1974, 1976; Gottlieb, Semmel and Veldman, 1978; Ianc, Ayers, McGettigan, and Walker, 1974; Siperstein, Bopp and Bak, 1978). This is the same problem that contributed to the development of special classes more than thirty years ago. At present, the evidence favoring mainstreaming of mildly academically handicapped students is too strong to suggest going back to special classes. The question now is, how can the academic and social needs of academically handicapped students best be met in the mainstreamed classroom?

A number of studies have attempted to improve the social status of academically handicapped students with their normal-progress peers. All of them have applied the same basic principle: place academically handicapped and normal-progress students in cooperative interaction, and relationships between them should improve. The general tendency of individuals who work cooperatively to come to like one another has been documented in more than a hundred studies (see Johnson and Johnson, 1974; Slavin, 1977). Improvements in relationships between academically handicapped and normal-progress students have been documented by researchers using heterogeneous cooperative groups in bowling (Johnson, Rynders, Johnson, Schmidt, and Haider, 1979), swimming (Martino and Johnson, 1979), planning skits (Chennault, 1967), planning a carnival (Rucker and Vincenzo, 1970), making a movie (Lilly, 1971), and preparing a multimedia class presentation (Ballard, Corman, Gottlieb, and Kaufman, 1977). These studies are important in demonstrating that use of cooperative activities involving small groups of academically handicapped and normal-progress students can in

fact improve relations between them. However, the direct practical applicability of these findings is somewhat limited. Short-term cooperative interventions are unlikely to have long-term effects; in fact, the initial positive effects of the Lilly (1971) and Rucker and Vincenzo (1970) studies did not maintain over time, and the other studies did not measure retention. Because bowling, swimming, and skits are unlikely to be continued indefinitely, it would be important to develop cooperative learning methods for use in settings that do continue for long periods. What appears to be needed is a cooperative learning method that can be imbedded in the ongoing classroom system as a regular part of the teacher's instructional approach.

This paper reports the results of a study undertaken to evaluate an instructional method involving the use of a cooperative program as a regular part of the daily academic instruction in elementary mathematics classrooms enrolling mainstreamed academically handicapped students. The cooperative program utilized learning teams constructed to involve academically handicapped and normal-progress students in groups where they studied mathematics materials together. This method is based on techniques called Student Team Learning (Slavin, 1980a), in which students work in four to five member learning teams to master academic materials. Student Team Learning techniques were seen as an appropriate basis for the experimental method because they have been shown in previous research to significantly improve student achievement, positive relationships between Black, White, and Hispanic students, student self-esteem, and other positive outcomes (see Slavin, 1980b). If a cooperative learning program based on these methods could be successfully adapted to the mainstreamed classroom, it is likely that this program could be used as a means of simultaneously improving the academic achievement of all students and relationships between mainstreamed and normal-progress students.

The cooperative intervention evaluated in this study is an adaptation of Student Teams-Achievement Divisions, or STAD (Slavin, 1978), the simplest of the Student Team Learning methods, to the needs of the mainstreamed classroom. STAD uses a regular sequence of teacher lectures, cooperative study in heterogeneous teams, individual quizzes, and team recognition based on the degree to which team members as a group have exceeded their own past quiz averages. It was hypothesized that the following differences would be seen between the experimental (cooperative) group and a control group:

-- It was expected that, controlling for pretests, normal-progress students in the experimental group would name more academically handicapped students as friends and desired workmates, and would reject fewer academically handicapped students as workmates, than would normal-progress students in the control group.

-- It was expected that, controlling for pretests, all experimental students, normal-progress as well as academically handicapped, would gain more in mathematics achievement and in self-esteem than would control students.

Method

Subjects

The subjects in this study were 183 third, fourth, and sixth graders in the Baltimore City Schools. Of these, 40 were identified by the school as having sufficient academic handicaps to warrant classification as children in need of special education services. These children were receiving special instruction for part of their academic day, and were placed in regular classes during the remainder of the day. The school

to the initiation of the treatments, the teachers were trained in the use of both treatments. All of the specific procedures that the teachers were to carry out were summarized in a teacher manual which was given to each teacher.

Cooperative Learning and Focused Instruction are described below:

Cooperative Learning. At the beginning of each week, each teacher presented the mathematics skill to be learned that week according to her own lesson plan. As much time as was necessary to teach the lesson adequately was allotted.

Team Practice. Following the presentation of the skill to be learned, students were organized into their teams to practice the material. Students were assigned to teams so that each team had a mixture of students from different achievement levels, sexes, and races. Student rankings on achievement and the race and sex of each student were given to the experimenter by the teacher. The experimenter then assigned students to teams in such a way as to insure balance on each of these factors and to distribute mainstreamed students across teams.

Individual Learning Expectations. Following team practice, students in the Cooperative Learning condition took a quiz to individually assess their learning of the skill presented and to determine their contribution to the team score. The individual's contribution to the team score was determined by comparing the student's current performance with his or her level of past achievement, to enable low achievers as well as high achievers to contribute substantially to the team, as well as to challenge all students to do their best.

criterion for such placement was that the child be functioning academically two grade levels behind age expectations.

Design

An experimental design which compared experimental and control groups was used to assess the effects of the use of a cooperative intervention. Each teacher taught one control and one experimental class. The assignment to experimental or control group was made randomly for each teacher, with stratification to insure an academic achievement balance between experimental and control groups.

Treatments

Two instructional methods were utilized in this study. One, Cooperative Learning, involved the use of a cooperative reward structure and a cooperative task structure in the classroom. The second served as a control condition, in which the same curriculum and schedule of instruction were used, but students studied individually and were given feedback on their performance individually. This condition was called Focused Instruction.

A structured mathematics curriculum was used in both treatments. Worksheet materials and weekly quizzes were provided for each teacher for both of the experimental conditions. Specific objectives were chosen from a prepared list by each teacher for the grade level being taught. A cycle of teach, practice, and quiz was followed in both conditions.

The experimental conditions were in effect for seven weeks, and were used for one hour a day, five days a week during mathematics instruction. Curriculum objectives were introduced to teachers and specific objectives chosen two weeks before the initiation of the treatments. One week prior

A student's contribution to his or her team score was determined by the amount that the student's weekly quiz score exceeded his or her "base" score. Initially, each subject was assigned a base score according to his or her performance on the pretest. After the first two weekly quizzes, new base scores were assigned according to a formula which took their current and past performance into account.

Each quiz had 30 items. Subjects received a maximum of 10 points to contribute to their teams. They received ten points if they exceeded their base by 10 or more points on the quiz or if they received a perfect score on the quiz. They received 8 points if they exceeded their base by 8 points, and so on. Students received a zero if their scores were at or below their base scores. Bases were set so that students would achieve about 5 points above their base if they met their past average.

Team Scores. Scores for individual team members were added together to give a total team score. Teams scoring above a specified criterion were named in a weekly newsletter, passed out at the beginning of each week.

Focused Instruction. The same cycle of teach, practice, and quiz followed in the Cooperative Learning condition was followed in the Focused Instruction condition. At the beginning of each week, each teacher presented the mathematics skill to be learned that week according to her own lesson plan. Students were then given worksheets and answer sheets covering the skill presented, and practiced the skill individually during the practice period. During this time, the teacher acted as a resource, helping children having questions about the material, reteaching any sections where students needed additional help, etc. Following the individual practice sessions, a quiz was given that directly tested the child's

acquisition of the specific skill taught. Students then received points individually. Points were determined by the Individual Learning Expectations formula presented earlier. Individuals with the highest number of points were mentioned in a weekly newsletter. Teachers were instructed to mention as many individuals from Focused Instruction classes in the newsletter as cooperative learning students named in the teacher's other class.

Thus, this condition differed from the experimental treatment only in that students did not work in teams, and did not receive feedback on their performance as teams. Points earned by the individual students were provided based on current performance relative to past performance in both treatments.

Outcome Measures

A variety of measures were used to assess social acceptance of mainstreamed children by their normal-progress peers, and achievement and self-concept of both mainstreamed and normal-progress children. These are listed below.

Peer Social Acceptance Measures. The major purpose of the study was to assess the effects of the cooperative intervention on the social acceptance of academically handicapped children by their normal-progress peers. Students were asked to complete three paper-and-pencil items indicating their choices of peers as workmates and friends. Sociometric measures of this sort were pioneered by Moreno (1934), and have been used as a method of assessing the peer structure of social groups, including classrooms, that is high in face validity (Holland Leinhardt, 1973).

For each of the first three items, students were given eighteen blank lines on which to indicate names of classmates about whom they felt

positively or negatively. On the first item, students were asked to name their friends. On the second, they were asked to name the students with whom they would like to work on a school project. On the third, students were asked to name those students with whom they would not like to work. The first six choices on each scale was analyzed, as these choices of other classmates represent the more intense relationships (Granovetter, 1973).

Achievement Measures. Mathematics achievement was measured by means of a curriculum specific test. A test covering all of the objectives chosen by the teachers to be taught during the experiment and objectives somewhat more complex and less complex then those objectives were incorporated into two forms of an eighty item test, one given as a pretest and one as a posttest.

Self-Concept Measures. The Coopersmith Self-Esteem Inventory (Coopersmith, 1975) was used as a pre- and posttest to assess changes in students' self-concepts occurring as a result of the cooperative intervention. The validity and reliability of the Coopersmith scale have been established in numerous studies (Coopersmith, 1967; Shavelson, Hubner and Stanton, 1976). Students were asked to respond to items making up three scales, the General Self-Esteem Scale, the Social Self-Esteem Scale, and the Academic Self-Esteem Scale.

The statements on the Self-Esteem Inventory were read aloud for the students to insure that each child understood the questions.

Results

The impact of the cooperative treatment on the social acceptance of academically handicapped students was analyzed using a one-way analysis of

covariance with controls for pretest and teacher. The number of close sociometric choices (within the first six choices made) received by each of the academically handicapped students from normal-progress students for each of the three sociometric choice questions was analyzed. The results of these analyses, presented in Table 1, partially confirm the hypothesis that the social acceptance of academically handicapped students would be enhanced by the cooperative treatment. The rejection of academically handicapped students by normal-progress students was significantly decreased by the cooperative treatment ($F(1,38) = 11.025$, $p < .01$). However, the improvement in social acceptance appeared only as a reduction of negative choices. Positive choices of academically handicapped students as friends or preferred workmates were not affected by the cooperative intervention. There were no differences between treatment groups on the number of academically handicapped students chosen as friends ($F(1,39) < 1$, n.s.) or the number of academically handicapped students desired as workmates ($F(1,39) = 1.926$, n.s.).

The results from the achievement measure were analyzed for both academically handicapped students and for the full sample. For the academically handicapped students, the analysis involved a one-way analysis of covariance with treatment as the independent variable and posttest score as the dependent variable. Pretest and controls for teacher were used as covariates. For the full sample, a two-way analysis of variance was used, with treatment as one factor and academically handicapped or normal-progress status as the other factor. Pretest measures on each variable and controls for teacher were again utilized as covariates. This kind of analysis was chosen so that interactions between treatment and

academically handicapped or normal-progress status would be recognized if present.

The results of the analysis of mathematics achievement are presented in Table 2. A main effect for treatment was found on the math achievement measure for the full sample ($F(1,143) = 3.745$, $p = .055$). This indicates that students in the cooperative condition made greater gains in math achievement than did control students. No main effects were found for academically handicapped/normal-progress status, and no interactions were found. However, no main effect for treatment was found for academically handicapped students only. Looking at the pre- and posttest means for each group, it is clear that the failure to find a significant difference for the academically handicapped students is due to small sample size. Academically handicapped students in the experimental classes gained 11.40 points from pre- to posttest, 3.89 points more than what control academically handicapped students gained. Normal-progress students in the experimental classes gained 12.66 points, 2.56 more than control. Thus, in terms of raw points gained, academically handicapped students in the experimental group gained more relative to their counterparts in the control group than did normal-progress students.

The results of the analysis of the Coopersmith Self-Esteem Inventory are presented in Tables 3a and 3b. In this table, a high mean score represents a more positive self-concept. The hypothesis that the cooperative treatment would enhance self-esteem was confirmed for the full sample, but not for the group of academically handicapped students. No differences in general self-esteem, social self-esteem, or academic self-esteem were noted between treatment and control groups for academically handicapped

students (for each analysis, $F(1,26) < 1$, n.s.). For the full sample, general self-esteem was enhanced for the students in the cooperative treatment ($F(1,138) = 4.780$, $p < .05$). No differences between conditions were seen for social or academic self-esteem. No main effects were found for academically handicapped/normal-progress status, nor were any interactions between treatment and academically handicapped/normal-progress status found.

Discussion

The hypothesis that the social acceptance of academically handicapped children enrolled in regular classes would improve as a result of the use of cooperation was partially supported. When the traditional competitive classroom structure was replaced with a cooperative arrangement for one period during the school day, the rejection of academically handicapped students by their normal-progress peers decreased. However, no growth was seen in friendship with or liking of academically handicapped students.

The finding that rejection of academically handicapped students decreased with the use of a cooperative classroom structure is an important one. As discussed earlier, a major concern that prompted educators in the 1940's and 1950's to support the development of segregated special classes for academically handicapped students was the effects of rejection of these students by their normal-progress peers (Johnson, 1940; Shattuck, 1946). In this study, that rejection was decreased significantly when students studied their usual academic tasks cooperatively over a short period of time, thus decreasing the negative impact of peer rejection on the academically handicapped student.

While the reduction of rejection of the academically handicapped children is clearly in important finding, it is interesting to find that friendship was not concurrently increased for the academically handicapped students. It has been recognized that positive and negative sentiment are not simply opposing ends of a single continuum (Lott and Lott, 1965), since a well-liked individual may also be one who is strongly rejected by some. However, in this case, the forces that operate to decrease rejection should also operate to increase friendship, as this increase in friendship has been found in other studies of cooperation in situations where there are not race or academic barriers to friendship (e.g., Slavin and Karweit, in press) and in situations where barriers to friendship such as racial differences between groups exist (e.g., Slavin, 1979).

Three of the four previous studies examining the impact of various interventions on the social acceptance of academically handicapped students in special or regular classes did not differentiate between increases in friendship and decreases in rejection. Chennault (1967), Lilly (1971), and Rucker and Vincenzo (1970) all used a measure which included rejection as part of a single liking scale. Thus, it is not possible to discern whether the short term improvements in social status for low status academically handicapped students involved increased liking or decreased dislike. However, in their study of the impact of a non-academic cooperative intervention on the social acceptance of educable mentally retarded students, Ballard, Corman, Gottlieb and Kaufman (1977) did examine changes in both liking and rejection. While the results indicate a stronger decrease in rejection, an increase in friendship was also found.

It is possible that with a longer treatment period, the academic incompetence of the special students would have become less important. The work by Siperstein and his colleagues (1978) suggests that if a child is competent in another area, academic incompetence may not result in low social acceptance. Over a longer treatment period, special students might be able to achieve an identity as a "good team member." This could perhaps minimize the importance of academic level for friendship choice.

Part of the purpose for delineating a cooperative task that involved an academic focus was to insure that the growth of normal-progress children would not be hindered by the utilization of an interaction of mildly academically handicapped students assigned to the regular classroom and the findings support this conclusion. The findings of overall achievement gains with the use of cooperation are strengthened because of the particular control group used. Research on the use of "direct instruction" (Ebmeier and Good, 1979) and other methods utilizing the definition of specific, well-defined goals, fast-paced instruction and frequent feedback (Beady, Slavin and Fennessey, in press; Slavin, 1980c) has indicated that techniques having many of the characteristics of the control group in this study have produced achievement gains over those of traditional classrooms in mathematics and language arts. The fact that the use of cooperation produced gains over a control group structured as the one used in this study was suggested that the academic achievement gains produced by the form of cooperative learning outlined here may be even stronger when compared to truly traditional instruction.

The improvement in the social acceptance of academically handicapped children reflected in the decrease in rejection found in this study sugggests

that cooperative learning methods be accepted as options for improving relationships between these groups. Because cooperation that is structured around academic tasks also benefits normal-progress students and does not take time away from the basic educational goals of the school, such methods can be incorporated into the basic structure of the classroom and used for an indefinite period of time. Similar methods have been used for all academic instruction for normal-progress students over a period of a semester, and greater achievement, more positive self-esteem, and more positive attitudes toward school were found (Slavin and Karweit, in press).

It is important to note that the generalizability of these findings is limited to mildly academically handicapped students. The needs of more severely retarded children, and of children with other handicaps, may or may not be met through the use of cooperative methods such as those used here. Further research must be conducted to assess both the problems and the potential solutions to these problems for these groups. However, if future research replicates the findings of this study, educators will have a means for improving the social experience of mildly academically handicapped children in regular classes.

References

Ballard, M., Corman, L., Gottlieb, J., & Kaufman, M. Improving the social status of mainstreamed retarded children. Journal of Educational Psychology, 1977, 69, 605-611.

Beady, C. H., Slavin, R. E., & Fennessey, G. M. Alternative student evaluation structures in desegregated classrooms. Journal of Educational Psychology, in press.

Bruininks, V. L. Peer status and personality characteristics of learning disabled and non-disabled students. Journal of Learning Disabilities, 1978, 11, 28-34.

Bruininks, V. L., Rynders, J. E., & Gross, J. C. Social acceptance of mildly retarded pupils in resource rooms and regular classes. American Journal of Mental Deficiency, 1974, 78, 377-383.

Bryan, T. Peer popularity of learning disabled children. Journal of Learning Disabilities, 1974, 7, 621-625.

Bryan, T. Peer popularity of learning disabled children: A replication. Journal of Learning Disabilities, 1976, 9, 307-311.

Budoff, M. & Gottlieb, J. Special class EMR children mainstreamed: A study of aptitude (learning potential) x treatment interaction. American Journal of Mental Deficiency, 1976, 81, 1-11.

Calhoun, G. & Elliott, R. N. Self concept and academic achievement of educable mentally retarded and emotionally disturbed pupils. Exceptional Children, 1977, 44, 379-380.

Chennault, M. Improving the social acceptance of unpopular educable retarded pupils in special classes. American Journal of Mental Deficiency, 1967, 72, 455-458.

Coopersmith, S. A. The Antecedents of Self-Esteem. San Francisco: Freeman, 1967.

Coopersmith, S. A. Coopersmith Self-Esteem Inventory. San Frandisco: Self Esteem Institute, 1975.

Ebmeier, H. and Good, T. L. The effects of instructing teachers about good teaching on the mathematics achievement of fourth grade students. American Educational Research Journal, 1979, 16, 1-16.

Goldstein, H., Moss, J., and Jordan, J. The efficacy of special class training on the development of mentally retarded children. (Cooperative Research Project No. 619) Washington, D.C.: U.S. Office of Education, 1965.

Gottlieb, J., Gampel, D. H., & Budoff, M. Classroom behavior of retarded children before and after integration into regular classes. Journal of Special Education, 1975, 9, 307-315.

Gottlieb, J., Semmel, M. I., & Veldman, D. J. Correlates of social status among mainstreamed mentally retarded children. Journal of Educational Psychology, 1978, 70, 396-405.

Granovetter, M. The strength of weak ties. American Journal of Sociology, 1973, 78, 1360-1380.

Holland, P. W. & Leinhardt, S. The structural implications of measurement error in sociometry. Journal of Mathematical Sociology, 1973, 3, 85-111.

Iano, R. P., Ayers, D., Heller, H. B., McGettigan, T. F. & Walker, V. S. Sociometric status of retarded children in an integrative program. Exceptional Children, 1974, 41, 267-271.

Johnson, G. O. A study of the social position of the mentally retarded child in the regular grades. Journal of Mental Deficiency, 1950, 55, 60-89.

Johnson, D. W. & Johnson, R. T. Instructional goal structure: Cooperative, competitive, or individualistic. Review of Educational Research, 1974, 44, 213-240.

Johnson, R., Rynders, J., Johnson, D. W., Schmidt, B., & Haider, S. Interaction between handicapped and nonhandicapped teenagers as a function of situational goal structuring: Implications for mainstreaming. American Educational Research Journal, 1979, 16, 161-167.

Lilly, M. S. Improving social acceptance of low sociometric status, low achieving students. Exceptional Children, 1971, 28, 345-347.

Lott, A. F. & Lott, B. E. Group cohesiveness as interpersonal attraction: A review of relationships with antecedent and consequent variables. Psychological Bulletin, 1965, 64, 259-309.

Martino, L. & Johnson, D. W. The effects of cooperative vs. individualistic instruction on interaction between normal-progress and learning-disabled students. Journal of Social Psychology, 1979, 105,

Meyers, C. E., MacMillan, D. L. & Yoshida, R. K. Regular class education of EMR students, from efficacy to mainstreaming: A review of issues and research. In J. Gottlieb (Ed.), Educating Mentally Retarded Persons in the Mainstream. Baltimore, MD: University Park Press, 1980.

Moreno, J. L. Who Shall Survive? Washington, D.C.: Nervous and Mental Disease Publishing Company, 1934.

Rucker, C. N. & Vincenzo, F. M. Maintaining social acceptance gains made by mentally retarded children. Exceptional Children, 1970, 36, 679-680.

Shattuck, M. Segregation vs. non-segregation of exceptional children. Journal of Exceptional Children, 1946, 12, 235-240.

Shavelson, R. J., Hubner, J. J. & Stanton, G. C. Self-concept: Validation of construct interpretations. Review of Educational Research, 1976, 46, 407-441.

Siperstein, G. N., Bopp, M. J. & Bak, J. J. Social status of learning disabled children. Journal of Learning Disabilities, 1978, 11, 98-102.

Slavin, R. E. Classroom reward structure: An analytic and practical review. Review of Educational Research, 1977, 47 (4), 633-650.

Slavin, R. E. Student teams and achievement divisions. Journal of Research and Development in Education, 1978, 12, 39-49.

Slavin, R. E. Effects of biracial learning teams on cross-racial friendships. Journal of Educational Psychology, 1979, 71, 381-387.

Slavin, R. E. Using Student Team Learning: Revised edition. Baltimore, MD: Center for Social Organization of Schools, The Johns Hopkins University, 1980. (a)

Slavin, R. E. Cooperative learning. Review of Educational Research 1980, 50, 315-342. (b)

Slavin, R. E. Effects of student teams and peer tutoring on academic achievement and time on-task. Journal of Experimental Education, 1980, 48, 252-257. (c)

Slavin, R. E. & Karweit, N. A. Cognitive and affective outcomes of an intensive student team learning experience. Journal of Experimental Education, in press.

Walker, U. S. Efficacy of the resource room for educating retarded children. Exceptional Children, 1974, 40, 288-289.

TABLE 1

ANALYSIS OF COVARIANCE OF SOCIOMETRIC CHOICES
OF ACADEMICALLY HANDICAPPED STUDENTS BY NORMAL-PROGRESS
STUDENTS IN COOPERATIVE AND CONTROL TREATMENTS

	Means					
	Pre	SD	Post	SD	F	P ≤
Friendship choices						
Cooperative Treatment	2.85	2.08	1.70	2.20	< 1	n.s.
Control Treatment	3.90	2.65	2.95	2.84		
Workmate choices						
Cooperative Treatment	1.50	1.64	1.15	1.87	1.926	n.s.
Control Treatment	1.95	1.99	2.35	2.52		
Rejection choices						
Cooperative Treatment	4.30	4.57	3 20	3.69	11.025	.01
Control Treatment	2.25	2.26	3.50	2.82		

TABLE 2

ANALYSIS OF MATHEMATICS ACHIEVEMENT FOR COOPERATIVE AND CONTROL TREATMENTS

MEANS	Experimental				Control			
	Pre	SD	Post	SD	Pre	SD	Post	SD
Academically handicapped students	32.62	13.35	44.00	15.55	26.25	16.19	33.76	21.48
	N = 15				N = 18			
Normal-progress students	38.90	17.75	51.56	17.92	37.90	18.56	48.00	21.80
	N = 62				N = 53			

ANALYSES OF COVARIANCE

	F	p ≤
Academically handicapped students (d.f. = 1,30)	<1	n.s.

	Treatment		Special/Normal-Progress		Interaction	
	F	p ≤	F	p ≤	F	p ≤
Full sample (d.f. = 1,143)	3.745	.055	2.642	n.s.	<1	n.s.

TABLE 3a

MEANS OF COOPERSMITH SELF-ESTEEM INVENTORY FOR COOPERATIVE AND CONTROL TREATMENTS*

	Treatment				Control			
Academically handicapped Students	Pre	SD	Post	SD	Pre	SD	Post	SD
General self-concept	1.62	.10	1.69	.16	1.52	.09	1.58	.16
Social self-concept	1.62	.20	1.70	.17	1.53	.16	1.67	.16
Academic self-concept	1.68	.20	1.61	.19	1.57	.24	1.49	.20
	N = 17				N = 15			
Normal-progress students								
General self-concept	1.62	.16	1.67	.16	1.65	.16	1.64	.17
Social self-concept	1.68	.21	1.68	.22	1.67	.23	1.72	.22
Academic self-concept	1.62	.20	1.67	.20	1.66	.21	1.65	.22
	N = 59				N = 58			

* A higher score indicates a more positive self-concept. Possible range of values is 1 to 2.

TABLE 3b

ANALYSES OF COVARIANCE FOR COOPERSMITH SELF-ESTEEM INVENTORY FOR COOPERATIVE AND CONTROL TREATMENTS

Academically handicapped students (d.f. = 1,26)

	F	p≤
General self-concept	<1	n.s.
Social self-concept	<1	n.s.
Academic self-concept	<1	n.s.

Full Sample (d.f. = 1,138)

	Treatment		Special/Normal-Progress		Interaction	
	F	p≤	F	p≤	F	p≤
General self-concept	4.870	.05	<1	n.s.	<1	n.s.
Social self-concept	<1	n.s.	<1	n.s.	<1	n.s.
Academic self-concept	1.451	n.s.	<1	n.s.	<1	n.s.